WHAT IS CLAIMED IS:

1. An information presentation apparatus comprising:

user operation input unit, adapted to input an operation of a user;

user viewpoint position and pose measurement unit, adapted to measure a position and pose at a user's viewpoint;

model data storage unit, adapted to store virtual world model data, real world model data, and data necessary to generate a virtual world image;

annotation data storage unit, adapted to store data necessary to be added to a real world and a virtual world and then displayed;

virtual image generation unit, adapted to generate an image of the virtual world by using information in said user viewpoint position and pose measurement unit, said model data storage unit and said annotation data storage unit;

user viewpoint image input unit, adapted to capture an image of the real world viewed from the user's viewpoint; and

image display unit, adapted to display an image obtained by synthesizing the image generated by said virtual image generation unit and the image obtained by said user viewpoint image input unit, on an image display device of the user.

2. An information presentation apparatus according to Claim 1, wherein plural information presentation apparatuses are provided, and said information presentation apparatus is connected to

5   other information presentation apparatus through a transmission channel so as to exchange communication data.

3. An information presentation apparatus

10   according to Claim 2, wherein the communication data includes an identification number of each user using said information presentation apparatus, a name for discriminating each user, position and pose information of each user's viewpoint, operation

15   information of each user, and annotation data.

4. An information presentation apparatus according to Claim 1, wherein the virtual world model data includes three-dimensional coordinates of

20   vertices of a polygon of a virtual computer graphics (CG) object arranged on the virtual world, structure information of faces of the polygon, discrimination information of the CG object, color information, texture information, a size of the CG object, and

25   position and pose information indicating the arrangement of the CG object on the virtual world.

5. An information presentation apparatus according to Claim 1, wherein the real world model data includes three-dimensional coordinates of vertices of a polygon of an object existing in the real world merged with the virtual world, structure information of faces of the polygon, discrimination information of the object, a size of the object, and position and pose information indicating the arrangement of the object.

6. An information presentation apparatus according to Claim 1, wherein the data necessary to generate the virtual world image includes internal parameters such as size and angle of an image pickup element of an image pickup device of said user viewpoint image input unit, an angle of view of a lens, a lens distortion parameter and the like.

7. An information presentation apparatus according to Claim 1, wherein said annotation data storage unit can store annotation data being additional information to be displayed on the real world and the virtual world.

8. An information presentation apparatus according to Claim 7, wherein the annotation data includes position and pose information of an object

arranged on the real world and the virtual world,
discrimination information of the object, and text,
symbol and image information for indicating
information of the object to the user.

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9. An information presentation apparatus
according to Claim 1, wherein said virtual image
generation unit draws the information stored in said
model data storage unit from the user's viewpoint in
10 computer graphics to generate the image of the
virtual world viewed from the user's viewpoint, by
using the position and pose information at the user's
viewpoint obtained from said user viewpoint position
and pose measurement unit.

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10. An information presentation apparatus
according to Claim 9, wherein said virtual image
generation unit has a function to transfer data to a
transmission channel and a function to receive data
20 from the transmission channel.

11. An information presentation apparatus
according to Claim 9, wherein said the virtual image
generation unit has a function to generate an
25 annotation by selecting the information to be
presented to the user from the annotation data stored
in said annotation data storage unit on the basis of

the position and pose at the user's viewpoint obtained from said user viewpoint position and pose measurement unit and the position and pose of other user's viewpoint obtained through the transmission channel, and to superpose the generated annotation on the image of the virtual world.

12. An information presentation apparatus according to Claim 11, wherein the annotation includes a symbol, a character string, and image information.

13. An information presentation apparatus according to Claim 9, wherein said virtual image generation unit has a function to automatically recognize a target that the user pays attention.

14. An information presentation apparatus according to Claim 9, wherein said virtual image generation unit has a function to recognize a target that the user pays attention, by the user's operation input to said user operation input unit.

15. An information presentation apparatus according to Claim 9, wherein said virtual image generation unit has a function, in a case where a target that other one or more users pay attention is

outside a visual range of the user, to generate an annotation indicating a direction of the target.

16. An information presentation apparatus according to Claim 9, wherein said virtual image generation unit has a function, in a case where a target that other one or more users pay attention is inside a visual range of the user, to generate an annotation indicating information of the target.

17. An information presentation apparatus according to Claim 9, wherein said virtual image generation unit has a function to generate an annotation of which the attributes of a color, a shape and a character type have been changed in regard to each user, and an annotation indicating a name for discriminating the user.

18. An information presentation apparatus according to Claim 9, wherein said virtual image generation unit has a function capable of controlling a generated annotation, by the user's operation input to said user operation input unit.

19. An information presentation apparatus according to Claim 9, wherein said virtual image generation unit has a function to generate an

annotation indicating information of a target that the user pays attention, in a state that its attributes of a color, a shape and a character type have been different from those of other annotation.

20. An information presentation apparatus according to Claim 9, wherein said virtual image generation unit has a function to generate an annotation indicating a direction of other user existing outside a visual range of the user.

21. An information presentation apparatus according to Claim 9, wherein said virtual image generation unit has a function to generate an annotation indicating a position of other user existing inside a visual range of the user.

22. An information processing method comprising the steps of:

inputting viewpoint information of a user;

generating a virtual world image according to the viewpoint information, by using previously held virtual world data;

generating an annotation concerning an attention target; and

generating an image obtained by synthesizing an image of a real world, generated virtual world image

and the generated annotation.

23. An information processing method according to Claim 22, wherein, in a case where the attention target exists outside the synthesized image, an annotation indicating a direction of the attention target is generated and synthesized to the synthesized image.

24. An information processing method according to Claim 22, wherein, in a case where the attention target exists inside the synthesized image, an annotation indicating additional information for the attention target and having an attribute different from that of other annotation is generated and synthesized to the synthesized image.

25. An information processing method according to Claim 22, wherein an annotation indicating whether or not the attention target is being observed by other user is generated and synthesized to the synthesized image.

26. An information processing method according to Claim 22, wherein an annotation indicating a position of other user is generated and synthesized to the synthesized image.

27. A program to achieve an information processing method comprising the steps of:

inputting viewpoint information of a user;

generating a virtual world image according to the viewpoint information, by using previously held virtual world data;

generating an annotation concerning an attention target; and

generating an image obtained by synthesizing an image of a real world, generated virtual world image and the generated annotation.